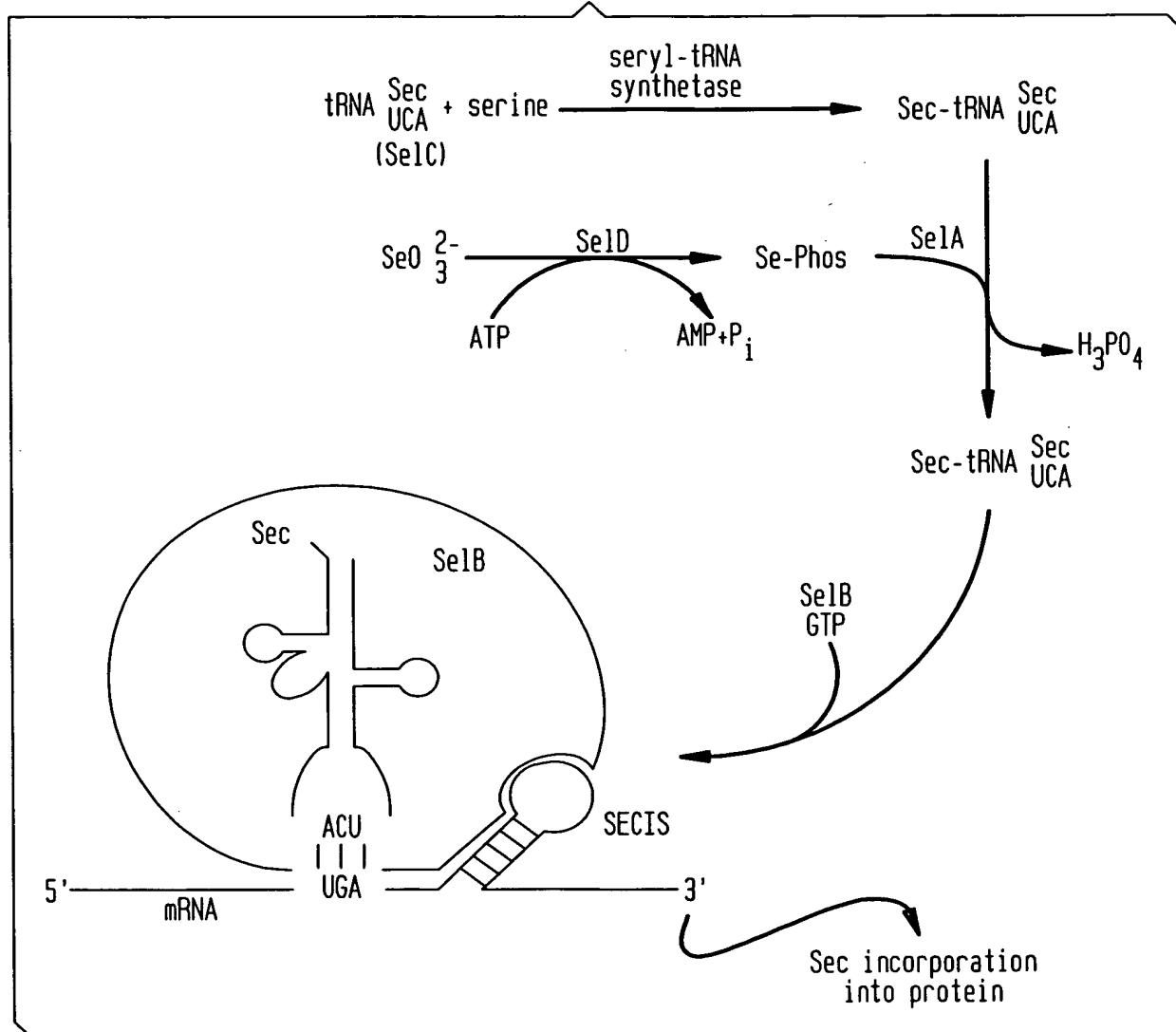




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FIG. 1



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FIG. 2

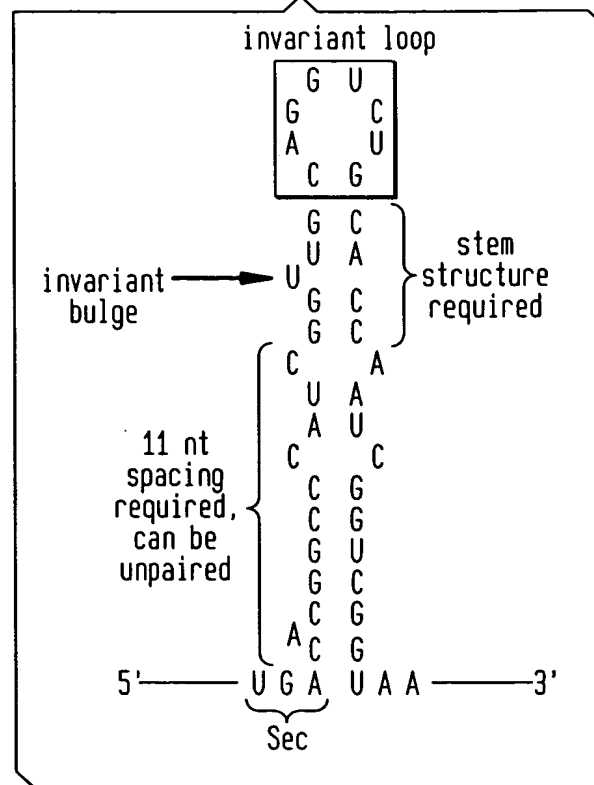


FIG. 4

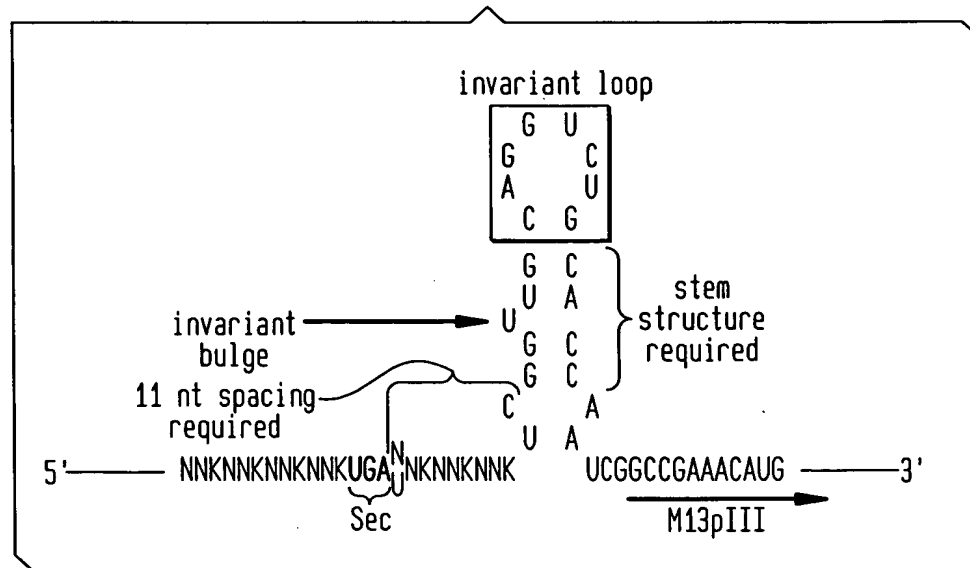


FIG. 3A

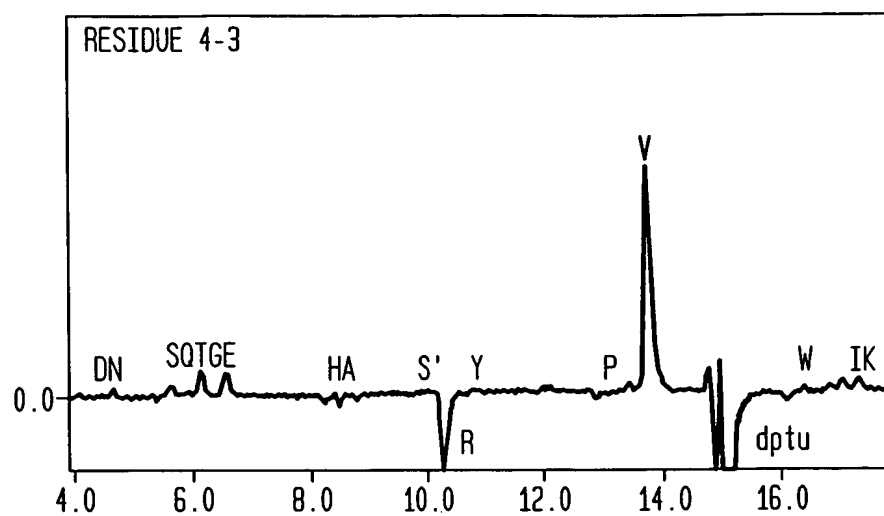


FIG. 3B

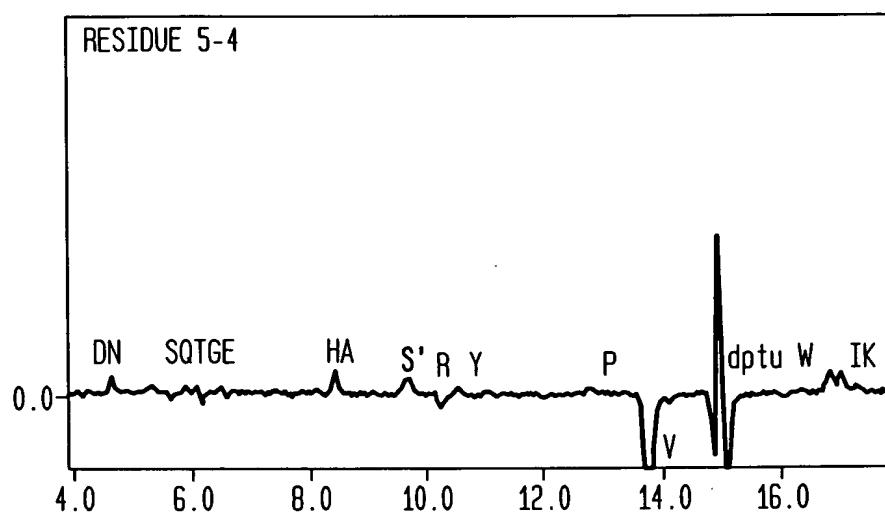
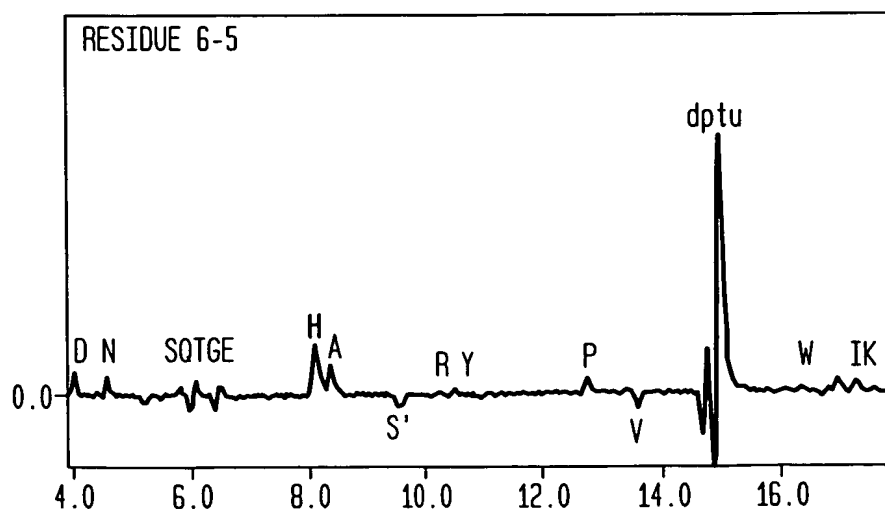


FIG. 3C



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FIG. 5

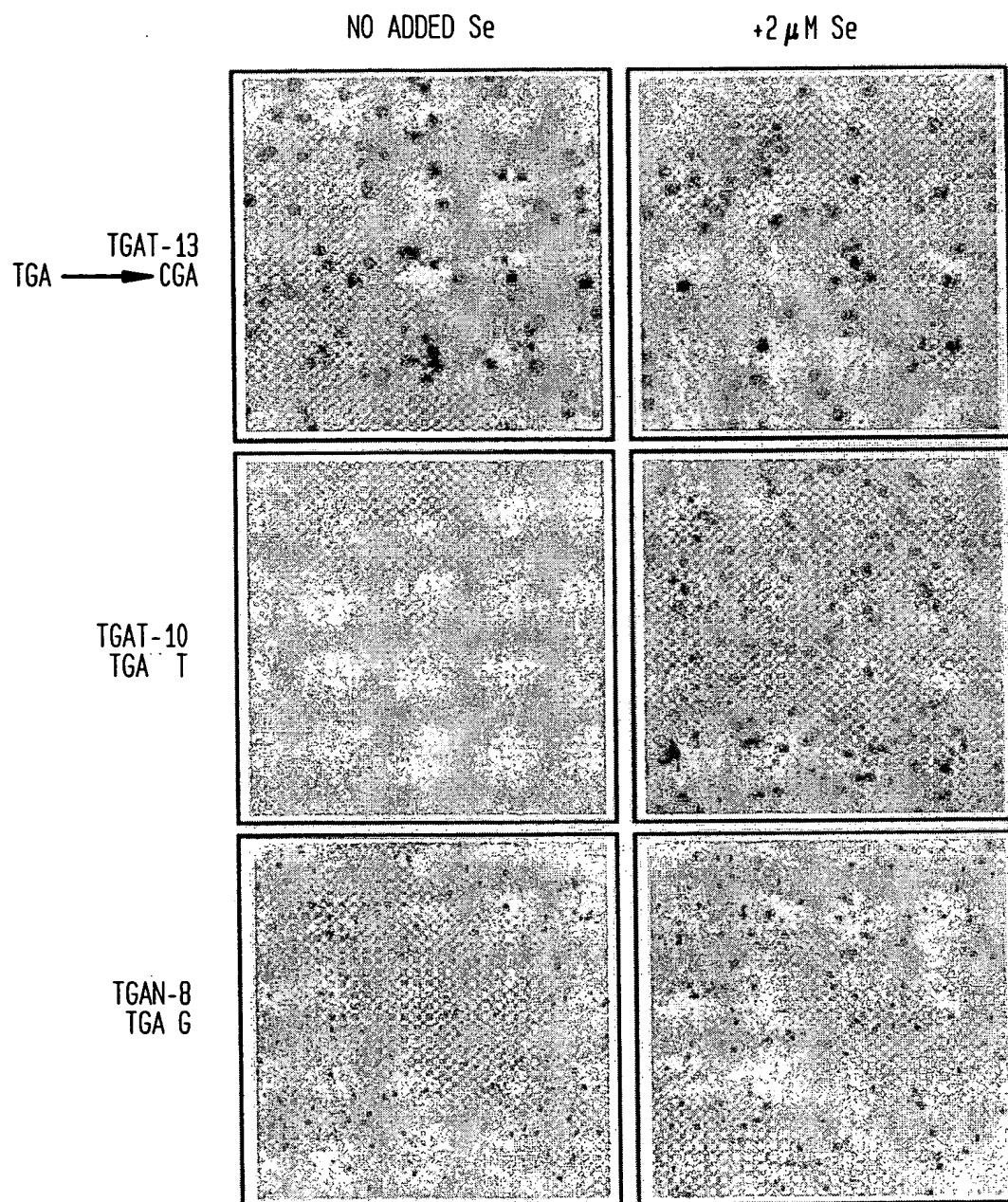


FIG. 6

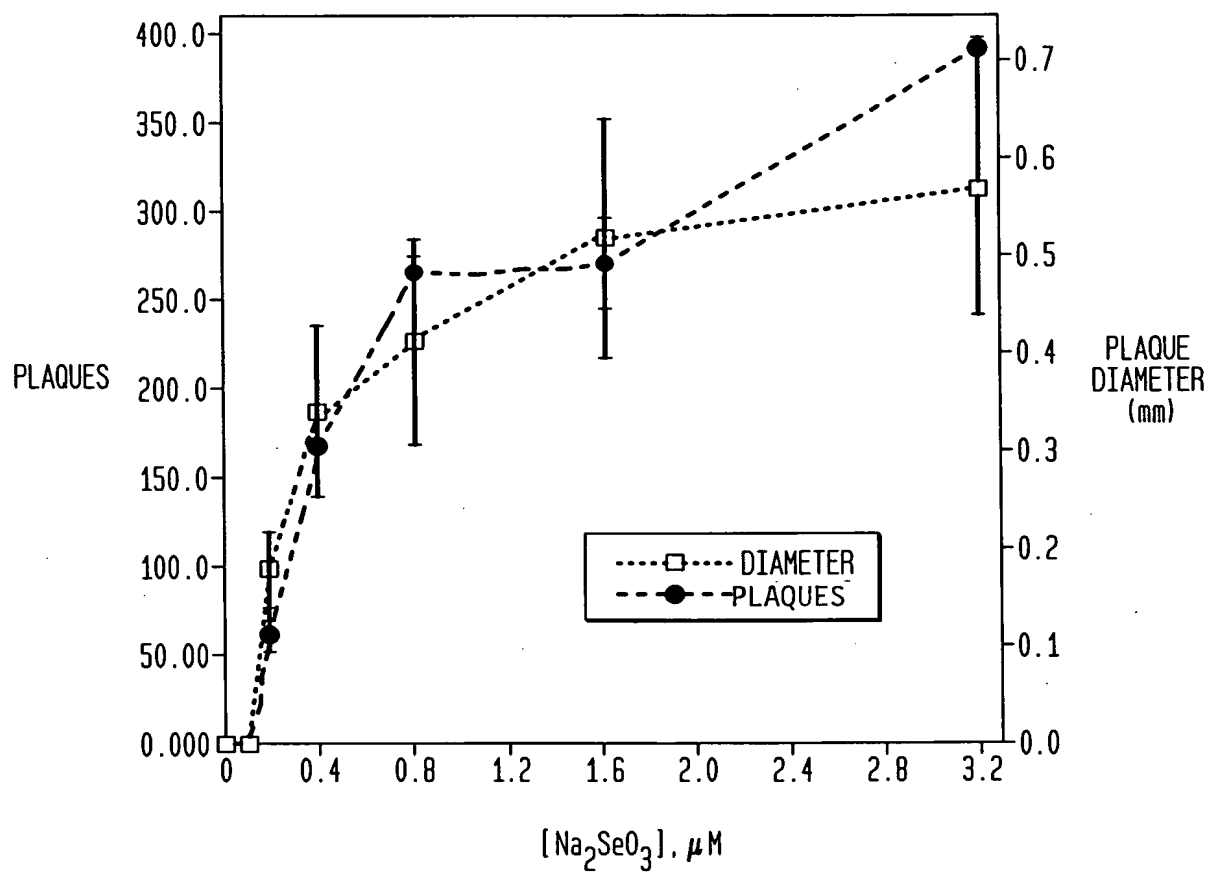


FIG. 7B

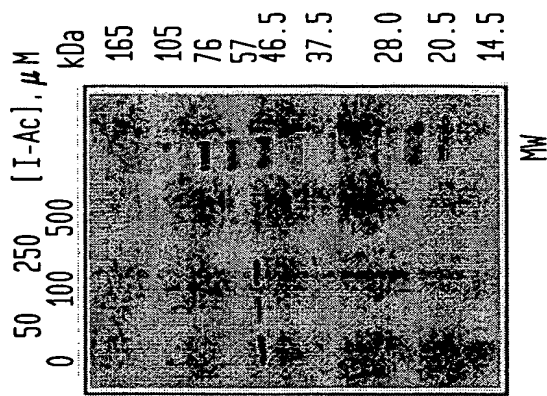
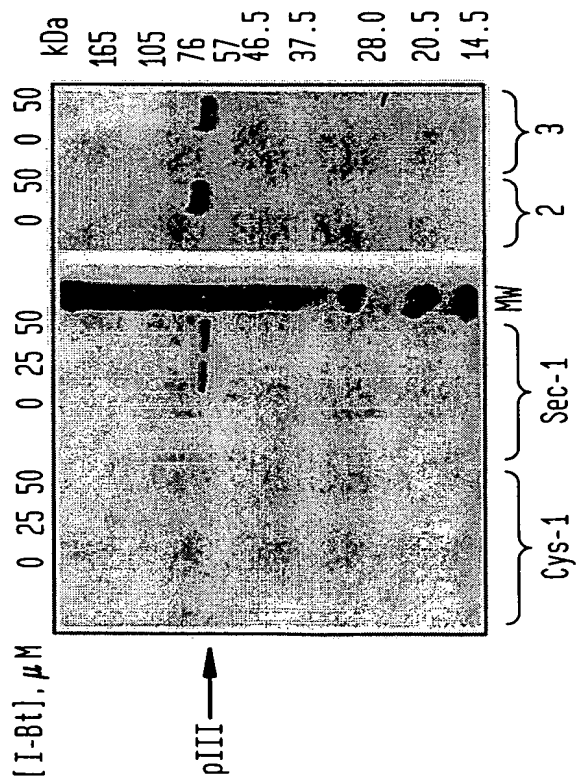


FIG. 7A



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FIG. 8A

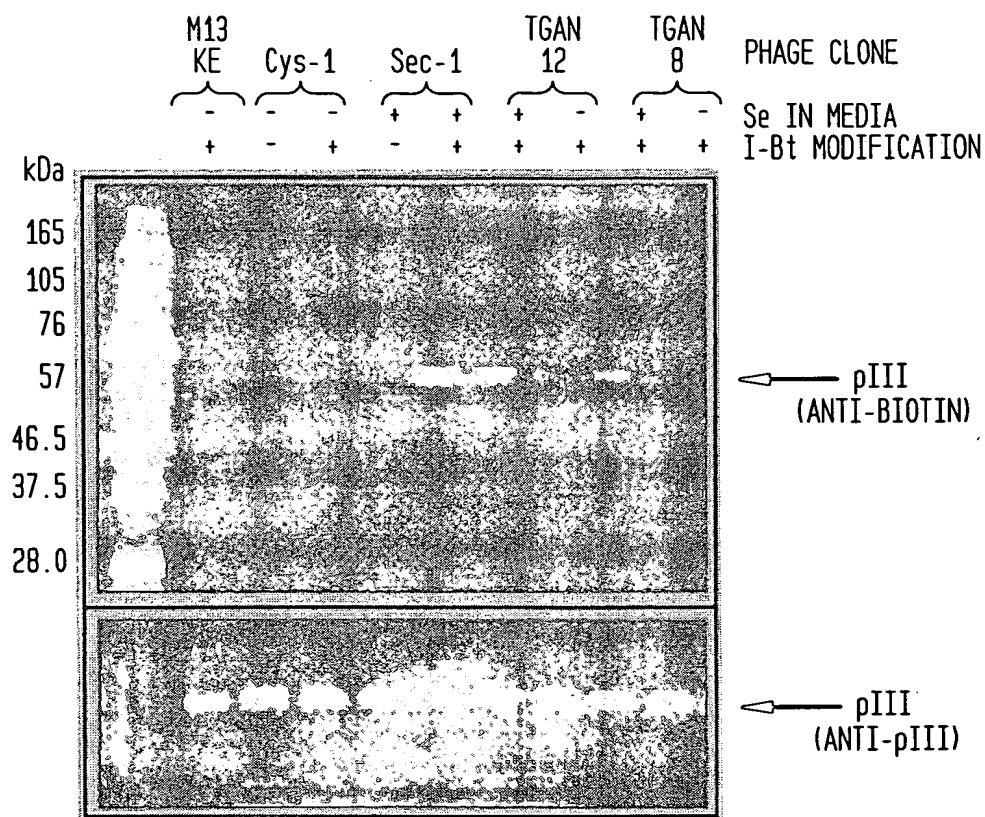
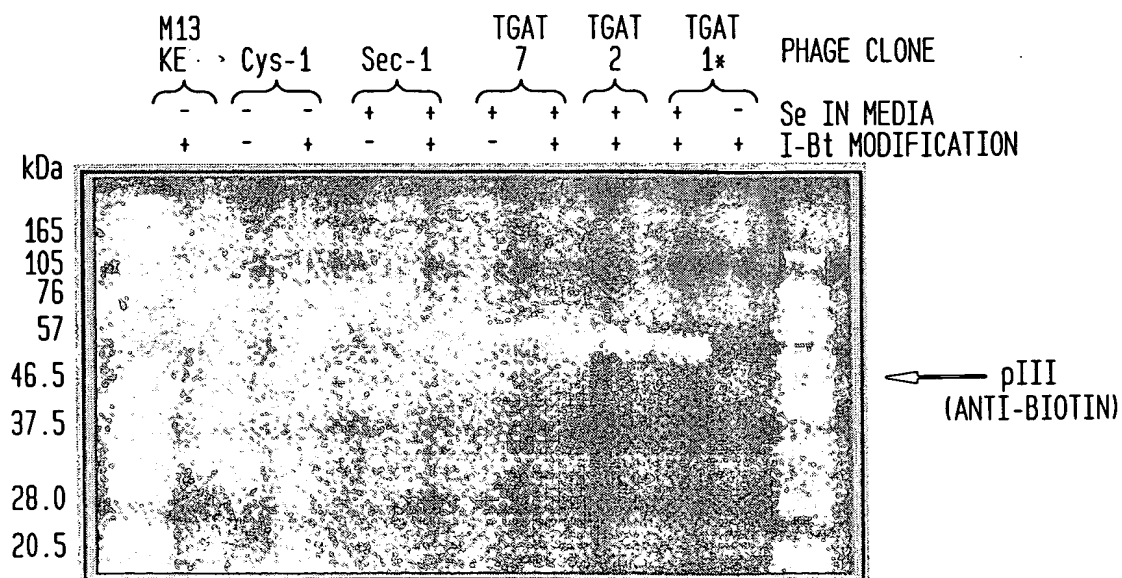


FIG. 8B



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FIG. 9

| CLONE | RANDOM INSERT | Se-DEPENDENT? |
|---------|--|----------------|
| TGAN-1 | TCG TCT TTT CCT TGA AAG TCG CCT S S F P op ^a K S P | - |
| TGAN-2 | AAG TGT ACG CTT TGA TCT ATG CTG K C T L Sec S M L | + |
| TGAN-3 | TTG CTT TTG CCT TGA AAT GTT CTT L L L P op N V L | - |
| TGAN-4 | ATG ACT ACG CAG TGA CCT TCT CTG M T T Q Sec S M L | + |
| TGAN-5 | CAT ATT CCG CCG TGA ACG AAT CCT H I P P op T N P | - |
| TGAN-6 | AAG GCT CTG TGT TGA CAG GAT TCG K A L C Sec Q D S | + |
| TGAN-7 | CTT CTT CCG TGT TGA GCT CAG CCG L L P C Sec A Q P | + ^b |
| TGAN-8 | CAT CAT CCG ACT TGA GCT AAG CAG H H P T op A K Q | - |
| TGAN-9 | ATG CCT CCT ACG TGA ATG GCT ACG M P P T op M A T | - |
| TGAN-10 | AAT TGG TTT TCT TGA CTG ACT ACG N W F S op L T T | - |
| TGAN-11 | CTG CAT CCG ACG TGA GCT CGG CCT L H P T op A R P | - |
| TGAN-12 | GAT AGG GGG CCT TGA GCG AAG ATT D R G P op A K I | - |
| TGAN-13 | GCG TCT TTG CCT TGA AGG ACG AGT A S L P op R T S | - |

^aop: opal suppression: Sec or W, depending on Se availability

^b TGAN-7 production was Se-enhanced; Se supplementation yield larger (3-4x diameter) and more (10x) plaques

Selected Library TGAN clones. TGAN-1 was expressed as a pMal-pIII fusion, and tryptophan incorporation was verified by N-terminal sequencing

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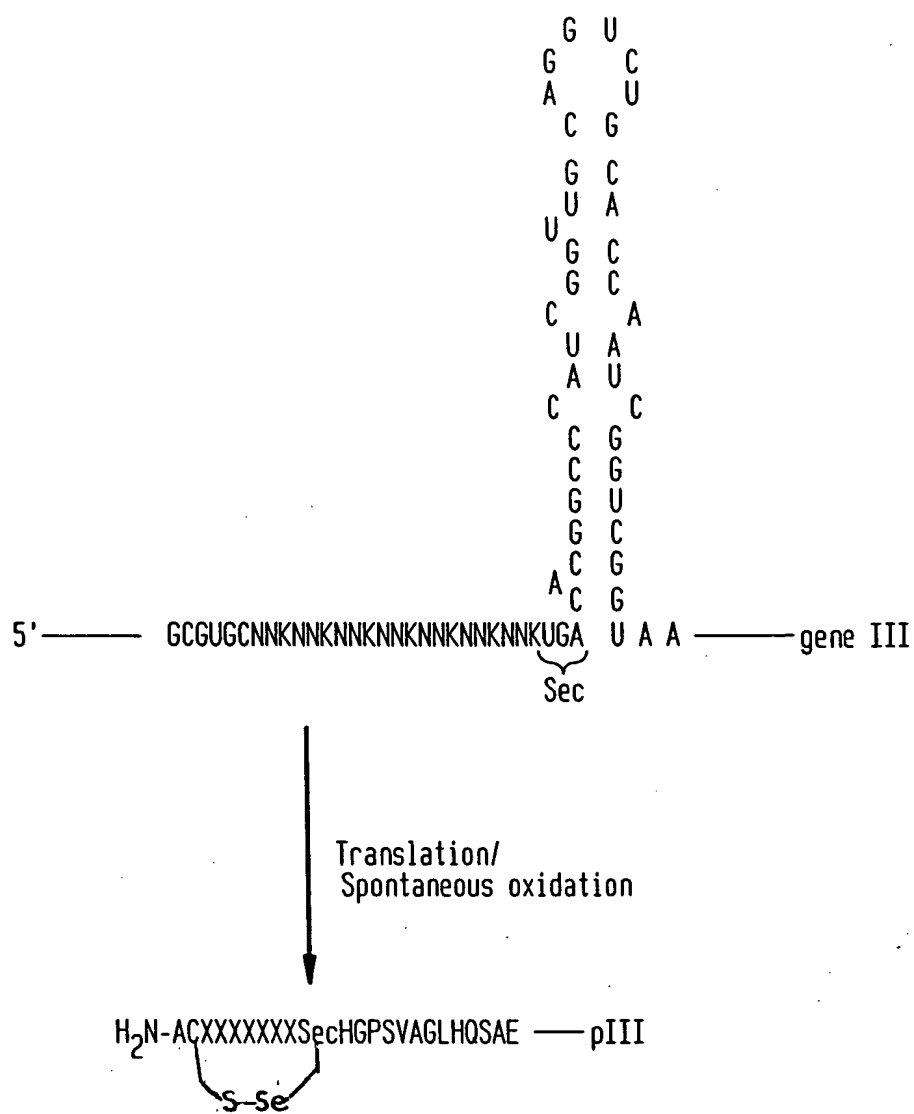
FIG. 10

| CLONE | RANDOM INSERT | Se- DEPENDENT? |
|---------|---|-------------------|
| TGAT-1 | L P R Q Sec W S P TTG CCG CGT CAG TGA TGG TCT CCG | + |
| TGAT-2 | L T G T Sec C Q N TTG ACT GGT ACG TGA TGT CAG AAT | + |
| TGAT-3 | E A S R Sec C S T GAG GCG TCG CGT TGA TGT TCG ACT | + |
| TGAT-4 | K L A R Sec S A S AAG TTG GCT CGT TGA TCG GCG TCG | + |
| TGAT-5 | N G A Q Sec S R H AAT GGG GCG CAG TGA TCG AGG CAT | + |
| TGAT-6 | A S P T Sec F K P GCG AGT CCT ACT TGA TTT AAG CCG | + |
| TGAT-7 | C A H P Sec S T R TGT GCT CAT CCG TGA TCT ACT CGT | + |
| TGAT-8 | Q S T R Sec W N D CAG TCG ACG CGG TGA TGG AAT GAT | + |
| TGAT-9 | I V E S Sec L N P ATT GTG GAG TCG TGA TTG AAT CCG | + |
| TGAT-10 | T Q R M Sec L P P ACG CAG CGT ATG TGA TTG CCG CCC | + |
| TGAT-11 | V Q Y T Sec L P K GTG CAG TAT ACG TGA TTG CCG AAG | + |
| TGAT-12 | A G Q S Sec S T D GCT GGG CAG TCG TGA TCG ACT GAT | + |
| TGAT-13 | L S A S R S Q F CTG TCT GCG AGT <u>CGA</u> TCG CAG TTT | - |

Selected TGAT library clones. TGAT-13 carried a T→C point mutation within the opal codon

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FIG. 11



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FIG. 12A

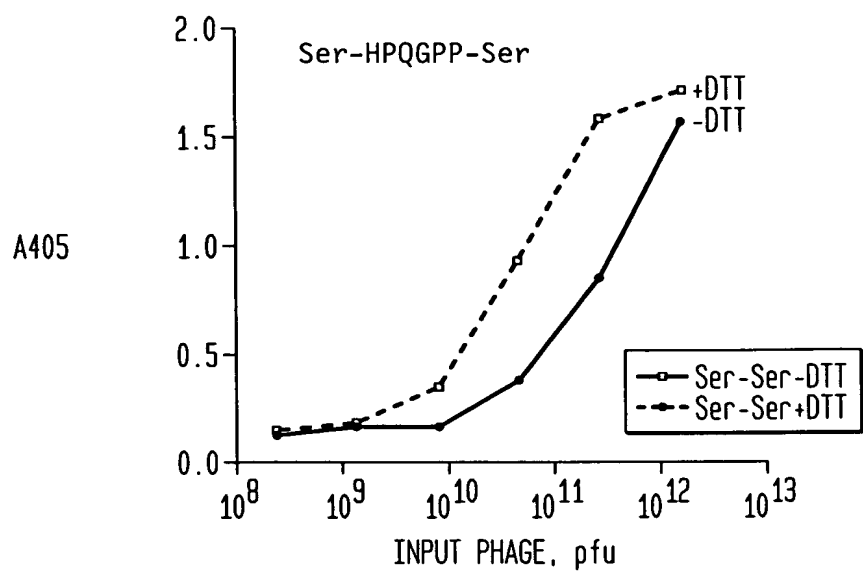


FIG. 12B

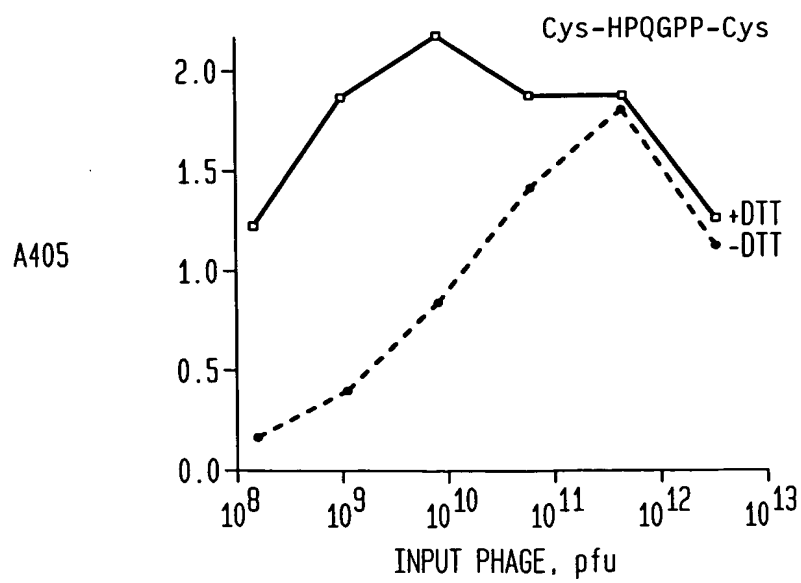
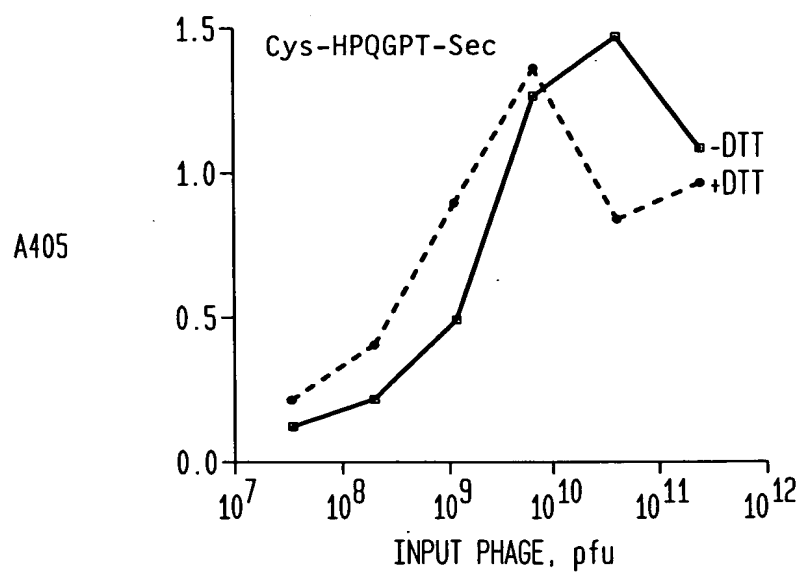


FIG. 12C



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